(No Model.)

A. A. FISHER.

CONSTRUCTION OF WATERPROOF CELLARS, &c.

No. 584,865. Patented June 22, 1897.

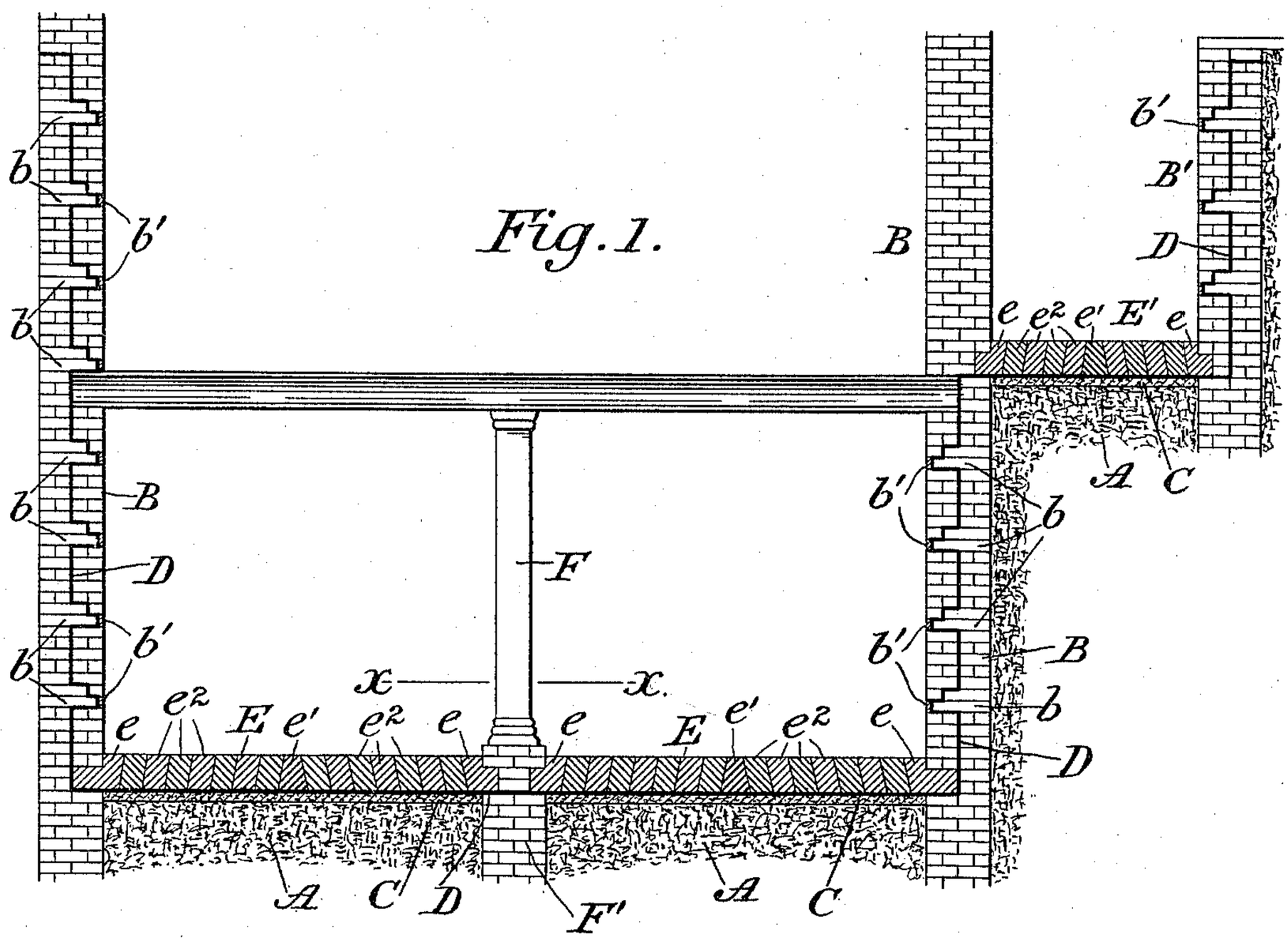

Fig. 1.

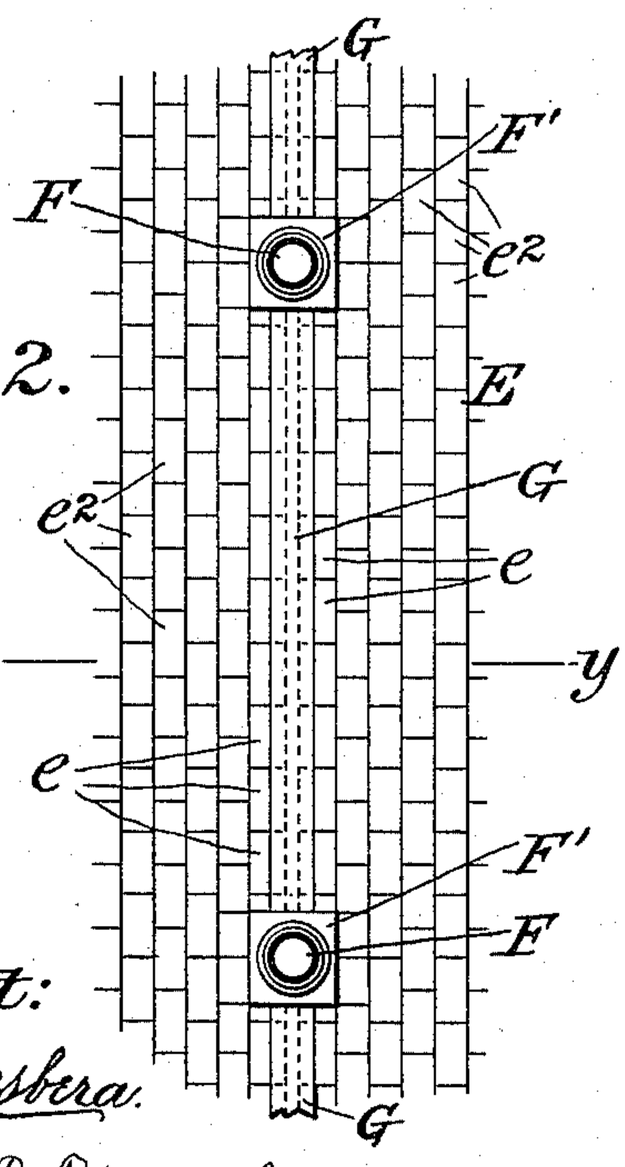

Fig. 2.

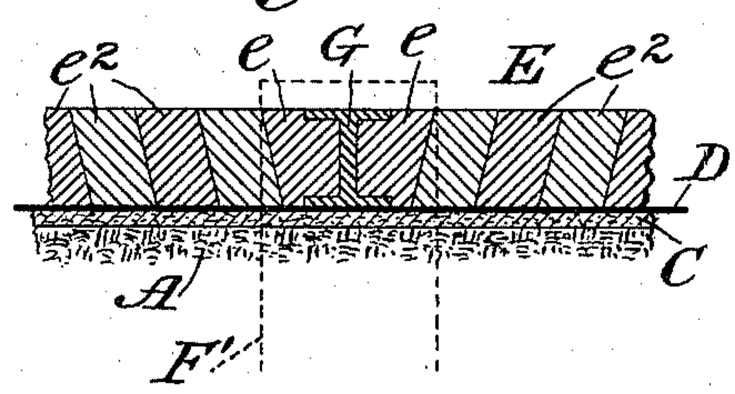

Fig. 3.

Attest:
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UNITED STATES PATENT OFFICE.

ANDREW A. FISHER, OF NEW YORK, N. Y.

CONSTRUCTION OF WATERPROOF CELLARS, &c.

SPECIFICATION forming part of Letters Patent No. 584,865, dated June 22, 1897.

Application filed February 6, 1897. Serial No. 622,245. (No model.)

To all whom it may concern:

Be it known that I, ANDREW A. FISHER, a citizen of the United States, residing in the city and county of New York, in the State of New York, have invented certain new and useful Improvements in the Construction of Waterproof Cellars, &c., of which the following is a specification, reference being had to the accompanying drawings, forming a part hereof.

This invention relates in general to the construction of cellars or other like excavations; and has for its object to provide improved means for rendering the bottoms and walls proof against the leakage of water inward or upward from without or from below, even though the cellar or other excavation should be located near a body of water and below high-tide level or in any other very wet ground.

It is now a common practice to coat the outside of a cellar-wall with tar or asphalt and to cement the bottoms; but it is well known that such means are ineffective to prevent the leakage of water into the cellar, especially when there is any degree of pressure upon the water. It has been proposed also to carry a sheet of metal or other material beneath the bottom and up with the side walls of a cellar, but so far as I am aware no practical way of carrying out this idea has yet been disclosed or suggested.

In accordance with my invention I employ a continuous sheet of metal or other waterproof material and so embody it in the construction of the cellar bottom and walls that the said sheet is at all times fully protected against abrasion or puncture, that it can be applied to a cellar of any depth, that it does not necessitate any reduction of valuable floor-space by inside walls, that it does not interfere in any way with a strict compliance with stringent building-regulations, that pressure from without or from below is always resisted effectually, and that the improvement is capable of application to cellars of any size.

I will proceed to describe my invention with reference to the accompanying drawings, in which I have illustrated its embodiment in a convenient and practical form, and in which—

Figure 1 is a transverse section of a cellar and an area-way to which my invention is applied. Fig. 2 is a detail view illustrating one feature which may be applied to cellars of large size and in which intermediate pillars are required to support the floor above, the pillars being in section on the plane indicated by the line $x\,x$ of Fig. 1. Fig. 3 is a detail view, in transverse section, on the plane indicated by the line $y\,y$ of Fig. 2.

In the embodiment of the invention illustrated in the drawings the earth in which the cellar or other excavation is formed is represented at A, the two side walls, of brick or other suitable material, being represented at B B, and the area-wall, likewise of brick or other suitable material, at B′.

It will be understood that the construction hereinafter described is likewise carried out in the end as well as in the side walls, it not being necessary to show the said walls. The earth at the bottom of the excavation is leveled off, and for the purpose of presenting a somewhat smoother and harder surface it may receive a thin coating C of cement. The continuous sheet D, which may be of metal or of any other suitable waterproof material, and is preferably composed of smaller sheets of lead which are united to form a continuous sheet as the work progresses, is laid upon the prepared bottom of the excavation and is carried up with and in the walls.

In the structure represented in Fig. 1 the sheet D is shown as not only inclosing the cellar proper but as carried across the area and up in the area-wall nearly to the level of the sidewalk.

In order to protect the horizontal portion of the sheet D, it is overlaid with a flat arch or floor E, composed of skewback-blocks $e\,e$ at each side, key-blocks e' in the middle, and intermediate blocks e^2 of rhomboidal cross-section. This construction of the floor enables the sheet D to resist the pressure from below, to which it would be subjected oftentimes in cellars located near a body of water or in other unfavorable localities. The skewback-blocks e are formed substantially as shown, so that they may be built into the adjacent structure. The walls may be provided, as usual, with heading-courses $b\,b$ at the required intervals, and at each heading-course the sheet D, which otherwise occupies substantially a middle position in the wall, is carried around the inner face of the heading-

course, as clearly represented in the drawings. As there represented, the heading-courses are preferably not carried clear to the inner face of the wall, but are left a little short of the inner face, so that the sheet D, where it is carried around the heading-course, may be protected by a thin filling b' of cement.

In cellars of considerable width or where it is necessary to support the floor above by pillars, as F, the foundation F′ of each pillar is formed in the usual way and is carried up to the level of the surfacing C. Then the sheet D is laid across and the foundation is continued to the proper height to receive the pillar F. From pillar to pillar and from each outside pillar to the adjacent end wall or from the foundations of the pillars is extended an iron beam G, against which the edges of the flat arches or floor-sections on each side abut in the same manner as they abut against the foundations of the pillars and against the side wall. The floor E′ of the area is preferably formed in the same manner as each floor-section E.

The manner of carrying my invention into effect will now be readily understood without further explanation, it being obvious that changes may be made to suit the requirements of each particular excavation.

It will also be clear that if the continuous sheet D be well made it will not be possible for water to work into the excavation through the side walls or through the bottom, and that the said sheet D is always and everywhere protected from danger of injury by abrasion or puncture.

I do not intend to confine myself to the use of blocks of any particular kind for the floor above the horizontal portion of the sheet D.

I claim as my invention—

1. A cellar or like excavation having masonry walls of brick or other like material, a continuous sheet of waterproof material laid upon the bottom of the cellar and carried up in the walls and an inverted flat arch or floor laid upon said sheet to withstand pressure from below and having at each side skewback-blocks built into the adjacent structure, substantially as shown and described.

2. A cellar or like excavation having masonry walls of brick or other like material, a continuous sheet of waterproof material laid upon the bottom of the cellar and carried up in the walls and an inverted flat arch or floor laid upon said sheet to withstand pressure from below and composed of skewback-blocks at each side built into the adjacent structure, inverted key-blocks and intermediate blocks of rhomboidal cross-section, substantially as shown and described.

3. A cellar or like excavation having masonry walls of brick or other like material with heading-courses at intervals, a continuous sheet of waterproof material laid upon the bottom of the cellar and carried up substantially in the middle of the walls but around the edges of the heading-courses and an inverted flat arch laid upon said sheet to withstand pressure from below and having at each side skewback-blocks built into the adjacent structure, substantially as shown and described.

4. A cellar or like excavation having masonry walls of brick or other like material, an intermediate foundation, a continuous sheet of waterproof material laid upon the bottom of the cellar through said intermediate foundation and carried up in the walls and a flat arch or floor laid upon said sheet and having at each side skewback-blocks built into the adjacent structure, substantially as shown and described.

5. A cellar or like excavation having masonry walls of brick or other like material, an intermediate beam parallel with the side walls, a continuous sheet of waterproof material laid upon the bottom of the cellar under said beam and carried up in the walls and flat arches or floor-sections laid upon said sheet on each side of said beam and having at each side skewback-blocks built into the adjacent structure, substantially as shown and described.

This specification signed and witnessed this 1st day of February, A. D. 1897.

ANDREW A. FISHER.

In presence of—
W. B. GREELEY,
CHAS. E. EPWORTH.